

# Ultrasonic Testing (UT) - Overview

## NDT Method Applicability

Ultrasonic inspection methods (a.k.a., UT) are typically used to detect corrosion, inclusions, cracks, weld defects, delaminations, incomplete bondlines, porosity, and grain related variations as well as to measure part thickness. As such, UT is used to detect and size discontinuities that are surface related as well as internal to the part (i.e., volumetric).

In general, UT can be applied at various points during manufacture as well as in-service, depending upon physical access and geometry issues. UT can be used to inspect both metals and non-metals.

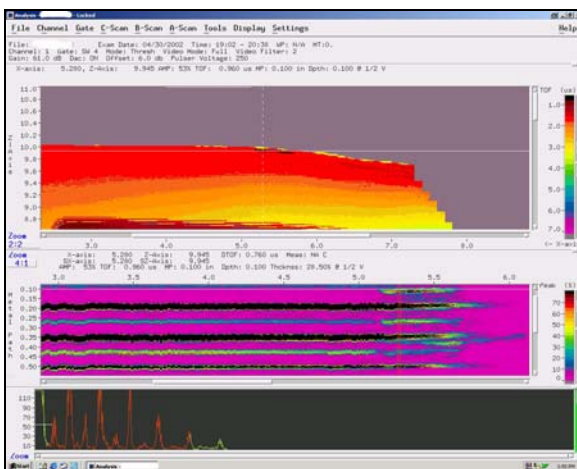
In aerospace applications for example, UT is commonly used on metals and composites, to inspect engine components as well as aircraft skins and structures.

## Benefits of Contracting MTC for UT Services

We are a NADCAP certified facility with qualified NDT personnel in accordance with NAS-410. We are a self-owned company, providing **independent** inspection services, free of any potential conflict of interest. As of 2002, we have 40 years of UT service experience. Our UT staff includes Level II and III personnel.

The vast majority of the UT we do is laboratory based, using immersion tanks. We also perform some contact testing, which can be done either in our lab or as a field service.

*In terms of UT inspection hardware, we are unique.* We have a combined advanced C-scan RF imaging system with our internally developed complex contour following motion control system (see related Application Note literature).



*C-Scan Image of an Aircraft Blade*



*Level III Inspector multi-tasking, analyzing UT C-Scan imaging data while continuing to acquire new data during the same inspection, using our complex contour following motion control immersion tank system*

## Inspection Service Overview

The following are the basic steps involved in conducting a UT inspection:

- A. Receipt/Traveler Documentation
- B. Develop Technique Sheet and Scan Plan
- C. Surface Cleaning, if required or necessary
- D. Program Motion Control
- E. Conduct System Cal-in on Representative Test Piece
- F. Perform the Automated UT Inspection
- G. Evaluate & Disposition Any Indications
- H. C-of-C Documentation
- I. Pack & Ship

## Applicable Codes & Standards

Metals Testing Company's UT methods comply with and have been approved for numerous aerospace and miscellaneous applications. A *sampling* of such specifications and requirements that we are approved for include:

General Electric Specification P3TF1, -F22, -F30, & -F35  
Pratt & Whitney Specifications SIM-1 and BTM  
SAE's AMS 2630  
MIL-STD-2154

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